What is claimed is:

1. A method of reducing a symptom of irritable bowel syndrome, comprising identifying a patient suffering from or at risk of developing irritable bowel syndrome, and administering to said patient a composition comprising *Bacillus coagulans* bacteria.

2. The method of claim 1, wherein said bacteria is *Bacillus coagulans* hammer.

3. The method of claim 2, wherein said bacteria is derived from *Bacillus coagulans* hammer strain Accession No. ATCC 31284.

4. The method of claim 1, wherein said composition further comprises a supplementary enzyme, wherein said enzyme is selected from the group consisting of a lactase, a fructase, a lipase, an amylase and a protease.

5. The method of claim 1, wherein said symptom is diarrhea or constipation.

6. The method of claim 1, wherein said symptom is alternating diarrhea and constipation.

7. The method of claim 1, wherein said symptom is selected from the group consisting of gas, bloating and intestinal discomfort.

8. The method of claim 1, wherein said composition further comprises an anti-gas agent.

9. The method of claim 8, wherein said anti-gas agent is selected from the group of α-galactosidase enzyme, simethicone, calcium carbonate, aluminum hydroxide and magnesium hydroxide.

10. The method of claim 1, wherein said *Bacillus coagulans* bacteria are provided at a concentration of from about $1x10^8$ to about $1x10^{10}$ viable bacteria.

11. The method of claim 1, wherein the *Bacillus coagulans* bacteria are in the form of spores.

12. The method of claim 1, wherein the *Bacillus coagulans* bacteria are in the form of vegetative cells.

13. The method of claim 1, wherein said composition further comprises an anti-diarrheal agent.

14. The method of claim 13, wherein said anti-diarrheal agent is selected from the group consisting of loperamide, attapulgite, Croton Lechleri Extract, and calcium polycarbophil.

15. The method of claim 1, wherein said composition further comprises a laxative agent.

16. The method of claim 15, wherein said laxative agent is selected from the group consisting of a sennoside, docusate sodium, magnesium hydroxide, and a dietary fiber.

17. A method of reducing a symptom of irritable bowel syndrome (IBS), comprising identifying a patient suffering from or at risk of developing irritable bowel syndrome, and administering to said patient a composition comprising an effective IBS-inhibiting amount of *Bacillus coagulans* bacteria prior to or concomitant with the onset of one or more IBS symptoms.

18. The method of claim 17, wherein said bacteria is *Bacillus coagulans* hammer.

19. The method of claim 18, wherein said bacteria is derived from *Bacillus coagulans* hammer strain Accession No. ATCC 31284.

20. The method of claim 17, wherein said composition further comprises a supplementary enzyme, wherein said enzyme is selected from the group consisting of a lactase, a fructase, a lipase, an amylase, and a protease.

21. The method of claim 17, wherein said *Bacillus coagulans* bacteria are provided at a concentration of from about $1x10^8$ to about $1x10^{10}$ viable bacteria.

22. A method of reducing a symptom of irritable bowel syndrome, comprising identifying a patient suffering from or at risk of developing irritable bowel syndrome, and administering to said patient a composition comprising a fructase and a lactase.

23. The method of claim 22, wherein said fructase is provided at a dose of from about 1000IU to about 12,000IU, and wherein said lactase is provided at a dose of from about 1000IU to about 12,000IU.

24. The method of claim 22, wherein said composition further comprises an anti-diarrheal agent.

25. The method of claim 24, wherein said anti-diarrheal agent is selected from the group consisting of loperamide, attapulgite, Croton Lechleri Extract, and calcium polycarbophil.

26. The method of claim 22, wherein said composition further comprises a laxative agent.

27. The method of claim 26, wherein said laxative agent is selected from the group consisting of a sennoside, docusate sodium, magnesium hydroxide, and a dietary fiber.

28. The method of claim 22, wherein said composition further comprises an anti-gas agent.

29. The method of claim 28, wherein said anti-gas agent is selected from the group of α-galactosidase enzyme, simethicone, calcium carbonate, aluminum hydroxide and magnesium hydroxide.

30. A method of diagnosing irritable bowel syndrome in a patient, comprising the steps of:

providing a patient-derived biological sample from said identified patient;

determining an amount of a product of a gastrointestinal enzyme in said patient-derived sample; and

comparing said amount in said patient-derived sample with a reference amount of a product of a gastrointestinal enzyme,

whereby an alteration in the test amount relative to the reference amount indicates that said patient has irritable bowel syndrome.

31. The method of claim 30, wherein said symptom is selected from the group consisting of diarrhea, constipation, and alternating diarrhea and constipation.

32. The method of claim 30, wherein said gastrointestinal enzyme is selected from the group consisting of a lactase, a fructase, a lipase and a protease.

33. A method of improving stool consistency in a patient afflicted with non-constipated irritable bowel syndrome, comprising administering an effective amount of a *Bacillus coagulans* bacteria, wherein said bacteria are provided at a concentration of from about $1x10^8$ to about $1x10^{10}$ viable bacteria, wherein stool consistency is improved following said administration.

34. A method of decreasing urgency in a subject afflicted with irritable bowel syndrome, comprising administering an effective amount of a *Bacillus coagulans* bacteria, wherein said

bacteria are provided at a concentration of from about $1x10^8$ to about $1x10^{10}$ viable bacteria wherein urgency is decreased following said administration.

35. A composition comprising *Bacillus coagulans* bacteria, a supplementary lactase, and a supplementary fructase.

36. The composition of claim 35, wherein said lactase is a β-galactosidase.

37. The composition of claim 35, wherein said lactase is provided in a concentration from about 1000 IU to about 12,000 IU, and wherein said fructase is provided in a concentration from about 1000 IU to about 12,000 IU.

38. The composition of claim 35, wherein said lactase is provided in a concentration of about 3000 IU, and wherein said fructase is provided in a concentration of about 3000 IU.

39. The composition of claim 35, further comprising one or more components selected from the group consisting of an anti-diarrheal agent, an anti-gas agent, a laxative, a vitamin, a mineral, an isolated amino acid, a source of dietary fiber, and an antibiotic.

40. The composition of claim 35, further comprising an isolated amino acid.

41. The composition of claim 39, wherein said component is manganese stearate.

42. The composition of claim 39, wherein said source of dietary fiber is selected from the group consisting of psyllium husk, soy fiber, citrus fiber, beet fiber, pumpkin seed meal, ground flax, black walnut hull, rice fiber, hydrocollodial polysaccharides, pecan husks, and peanut husks.

43. The composition of claim 35, further comprising a pharmaceutically-acceptable carrier, wherein said carrier comprises silicone.

44. The composition of claim 35, wherein said *Bacillus coagulans* bacteria is provided at a concentration of from about $1x10^8$ to about $1x10^{10}$ viable bacteria.

45. The composition of claim 35, wherein said composition is in the form of a capsule, tablet, powder, or liquid.

46. The method of claim 35, wherein said *Bacillus coagulans* bacteria is derived from *Bacillus coagulans* hammer strain Accession No. ATCC 31284.

47. A composition comprising from about $1x10^8$ to about $1x10^{10}$ *Bacillus coagulans* bacteria, a supplemental lactase provided in a concentration of about 3000 IU, a supplemental fructase provided in a concentration of about 3000 IU, and manganese stearate.

48. A composition comprising an isolated lactase and an isolated fructase, wherein said isolated lactase is provided in a concentration from about 1000 IU to about 12,000 IU, and wherein said isolated fructase is provided in a concentration from about 1000 IU to about 12,000 IU.

49. The composition of claim 48, further comprising one or more components selected from the group consisting of an anti-diarrheal agent, an anti-gas agent, a laxative, a vitamin, a mineral, an isolated amino acid, a source of dietary fiber, and an antibiotic.

50. The composition of claim 49, wherein said anti-diarrheal agent is selected from the group consisting of loperamide, attapulgite, Croton Lechleri Extract, and calcium polycarbophil.

51. The composition of claim 49, wherein said laxative agent is selected from the group consisting of a sennoside, docusate sodium, magnesium hydroxide, and a dietary fiber.

52. The composition of claim 49, wherein said anti-gas agent is selected from the group of simethicone, calcium carbonate, aluminum hydroxide and magnesium hydroxide.

53. A method for increasing carbohydrate absorption in a mammal, comprising administering to a mammal a composition comprising *Bacillus coagulans* bacteria, a supplementary lactase, and a supplementary fructase, wherein carbohydrate absorption is increased following said administration.

54. The method of claim 53, wherein said mammal is diagnosed as suffering from or being at risk of developing a disorder associated with carbohydrate malabsorption.

55. The method of claim 54, wherein said disorder associated with carbohydrate malabsorption is selected from the group consisting of: lactose intolerance, fructose intolerance, glucose-galactose intolerance, sorbitol intolerance, irritable bowel syndrome, short bowel syndrome, stagnant loop syndrome, celiac disease, chronic malnutrition, chronic persistent diarrhea, immunoproliferative small intestinal disease, intractable diarrhea of infancy, postenteritis syndrome, tropical sprue, Whipple's disease, Wolman disease, Crohn's disease and ulcerative colitis.

56. The method of claim 53, wherein the mammal is human.

57. The method of claim 53, wherein said lactase is provided in a concentration from about 1000 IU to about 12,000 IU, and wherein said fructase is provided in a concentration from about 1000 IU to about 12,000 IU.

58. The method of claim 53, wherein said composition further comprises one or more components selected from the group consisting of an anti-diarrheal agent, an anti-gas agent, a laxative, a vitamin, a mineral, an isolated amino acid, a source of dietary fiber, and an antibiotic.

59. A method for increasing lactose digestion, comprising identifying a patient suffering from or at risk of developing lactose intolerance, and administering to said patient a composition comprising *Bacillus coagulans* bacteria and a supplemental lactase, whereby lactose digestion is increased following said administration.

60. The method of claim 59, wherein the patient is human.

61. The method of claim 59, wherein said lactase is provided in a concentration from about 1000 IU to about 12,000 IU.

62. A composition comprising a *Bacillus coagulans* bacteria and a supplementary fructase.

63. The composition of claim 62, wherein said fructase is provided in a concentration from about 1000 IU to about 12,000 IU.

64. The composition of claim 62, wherein said fructase is provided in a concentration of about 3000 IU.

65. The composition of claim 62, further comprising an isolated amino acid.

66. The composition of claim 62, wherein said composition is in the form of a capsule, tablet, powder, or liquid.

67. The composition of claim 62, wherein said *Bacillus coagulans* bacteria are derived from *Bacillus coagulans* hammer strain Accession No. ATCC 31284.

68. A medical food for the management of irritable bowel syndrome, comprising *Bacillus coagulans* bacteria and L-lysine, wherein said medical food is formulated to provide at least

about $1x10^6$ viable *Bacillus coagulans* bacteria in the gastrointestinal tract of a mammal per day, based on a serving size of about 1 gram to about 2 grams of said medical food taken up to twice a day.

69. The medical food of claim 68, further comprising a supplemental enzyme selected from the group consisting of a lactase, a fructase, a lipase and a protease.

70. The medical food of claim 68, further comprising one or more components selected from the group consisting of an anti-diarrheal agent, an anti-gas agent, a laxative, a vitamin, a mineral, an isolated amino acid, a source of dietary fiber, and an antibiotic.

71. A method of dietary management of a subject's carbohydrate absorption, comprising the steps of:

identifying a patient having a symptom of carbohydrate malabsorption; and

providing a composition comprising *Bacillus coagulans* bacteria to said subject, wherein said bacteria colonize said subject's gastrointestinal tract,

whereby carbohydrate absorption by said subject is modulated, such that the subject's carbohydrate absorption is managed.

72. A method of dietary management of a subject's carbohydrate absorption, comprising the steps of:

identifying a patient having a symptom of carbohydrate malabsorption;

providing a patient-derived biological sample from said identified patient;

determining an amount of a product of a gastrointestinal enzyme in said patient-derived sample;

comparing said amount in said patient-derived sample with a reference amount of a product of a gastrointestinal enzyme; and

providing a composition comprising *Bacillus coagulans* bacteria,

whereby the subject's carbohydrate absorption is managed.

73. A method for increasing carbohydrate absorption in a patient diagnosed as suffering from or being at risk of developing celiac disease, comprising administering to said patient a composition comprising *Bacillus coagulans* bacteria, wherein carbohydrate absorption in said patient is increased following said administration.

74. A method of reducing a symptom of irritable bowel syndrome, wherein said symptom comprises alternating diarrhea and constipation, comprising identifying a patient suffering from or at risk of developing irritable bowel syndrome, and administering to said patient a composition comprising *Bacillus coagulans* bacteria.

75. A composition comprising a *Bacillus coagulans* bacterium and a supplementary enzyme provided in a formulation with a food product.

76. The composition of claim 75, wherein said food product is a dairy product.